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AS 2432 (2009) (English): Babies Dummies [Authority:  
Australian Consumer Protection Notice No. 4 of 2006]

*"We will sell to no man, and we will not deny  
or defer to any man, either justice or right."*

Parliamentary Counsel  
Australian Capital Territory

*"The content of the law  
should be accessible to the public."*  
Honourable Murray Gleeson, AC, QC  
11th Chief Justice of the High Court



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AS 2432—2009

AS 2432—2009

Australian Standard<sup>®</sup>

**Babies' dummies**

STANDARDS  
Australia



This Australian Standard® was prepared by Committee CS-040, Babies Dummies. It was approved on behalf of the Council of Standards Australia on 17 March 2009. This Standard was published on 22 April 2009.

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The following are represented on Committee CS-040:

- Australian Breastfeeding Association
  - Australian Competition and Consumer Commission
  - Australian Industry Group
  - Australian Toy Association
  - Consumers Affairs Victoria
  - Consumer's Federation of Australia
  - CHOICE
  - Infant Nursery Products Association of Australia
  - NSW Office of Fair Trading Department
- 

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard<sup>®</sup>

## **Babies' dummies**

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## PREFACE

This Standard was prepared by the Standards Australia Committee CS-040 Babies' Dummies to supersede AS 2432—1991. This Standard aims to establish, through manufacturing requirements, a desirable level of inherent safety in babies' dummies.

This edition differs from the previous edition in that:

- (a) The off-set requirement in the shield template test has been removed.
- (b) The method of analysis for acid-soluble has been removed and replaced by a reference to AS/NZS ISO 8124.3.
- (c) The ambiguity of the test methods have been minimized.
- (d) The requirements concerning protruding components and the impact test have been harmonized with the European Standard, EN 1400-1.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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## STANDARDS AUSTRALIA

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**Australian Standard**  
**Babies' dummies**

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**1 SCOPE**

This Standard specifies safety requirements relating to the materials, design, construction and performance of babies' dummies, together with recommendations for product labelling.

**2 APPLICATION**

This Standard applies to all babies' dummies except those intended for use by premature babies, or for therapeutic applications or the like, in which the usage is under medical supervision or direction.

NOTE: Because of certain physical properties that are requirements of this Standard, e.g. the size of the shield, dummies complying with this Standard may not be suitable for use by small premature babies or babies that are being treated for cleft palate or other malformation. Consequently, a dummy that is intended for such an application is exempted from the requirements of this Standard. However, exempted dummies should comply with those requirements in this Standard that can be applied.

**3 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

AS

2070 Plastics materials for food contact use

AS/NZS ISO

8124 Safety of toys

8124.3 Part 3: Migration of certain elements

**4 DEFINITIONS**

For the purpose of this Standard, the following definitions apply.

**4.1 Dummy**

A fully assembled article used to pacify a baby, which includes a teat that the baby sucks, but from which the baby does not obtain fluid.

NOTE: Babies' dummies are also known as 'pacifiers' or 'soothers'.

**4.2 Plastics material**

A material based on synthetic polymers or modified natural polymers that, during manufacture, may be formed to shape by flow, aided in many cases by heat and pressure, but which cannot be substantially deformed by a weak force and does not rapidly return approximately to its initial dimensions and shape, after release of the force.

**4.3 Plug**

A structure inserted within the neck of the teat to attach the teat firmly to the shield.



#### 4.4 Projected plan area of a shield

The maximum area obtained by projecting all points on the periphery of a shield onto a flat plane wherein all the projections are at right-angles to the flat plane (see Figure 1).

NOTE: When determining the boundary of the projected plan area, no force is to be applied to the shield to alter it. For example, if a dummy has a shield which is contoured to conform with the child's mouth, when determining the boundary of the projected plan area, the shield is not to be flattened to obtain a larger projected plan area.

#### 4.5 Ring or handle

A structure positioned adjacent to or on the shield to facilitate handling of the dummy.

NOTE: The ring or handle may be integral with the shield or plug or it may be a separate component that is suitably attached to the shield or plug.

#### 4.6 Rubber material

A polymeric material that, after being substantially deformed by a weak force that is subsequently released, rapidly returns approximately to its initial dimensions and shape.

#### 4.7 Shield

A structure positioned at the rear of the teat to reduce the likelihood of the dummy being drawn into the baby's mouth.

#### 4.8 Width of a shield

The minimum distance between two parallel straight lines, wherein each straight line contacts one or more extreme points on the projected plan area of a shield, but does not pass through the projected plan area (see Figure 1).

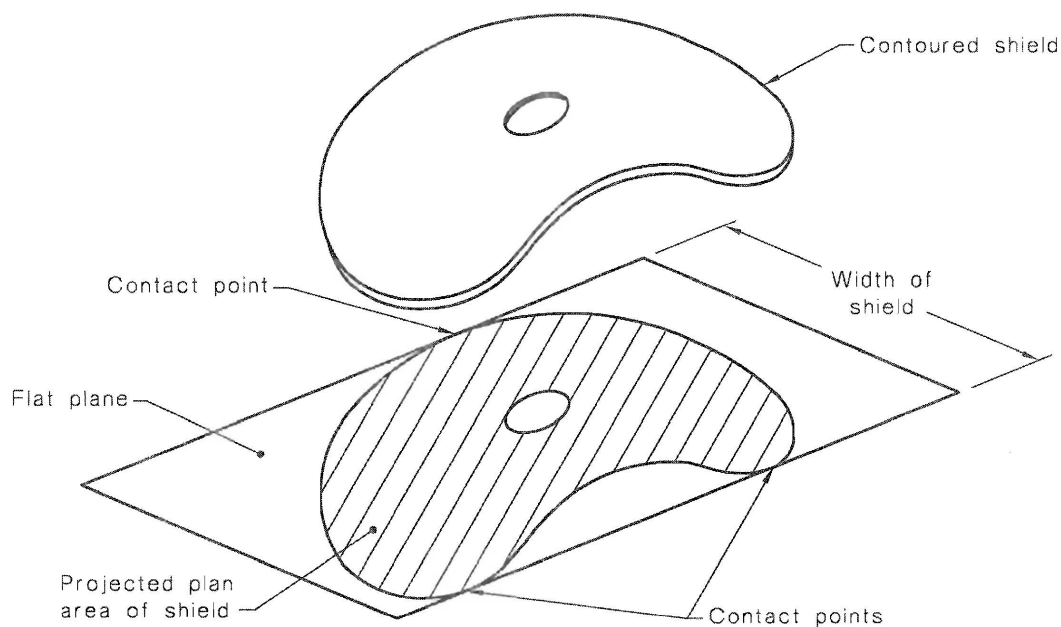


FIGURE 1 PROJECTED PLAN AREA AND WIDTH OF A SHIELD

### 5 MATERIAL REQUIREMENTS

#### 5.1 General

A dummy shall be made from plastics or rubber materials or both, each of which shall not contain any leachable constituent—

- (a) in a concentration to be harmful to health;
- (b) known to cause mucosal irritation; or
- (c) which would flavour any part of the dummy.

NOTE: The use of any material other than plastics or rubber, as defined in Clauses 4.2 and 4.6, is not permitted in dummies (see comments in the Preface).

## 5.2 Toxicity

All materials used in a dummy shall comply with the maximum acceptable levels of element migration when tested in accordance with AS/NZS ISO 8124.3.

# 6 DESIGN AND CONSTRUCTION

## 6.1 General

A dummy shall comply with the requirements of Clauses 6.2 and 6.3, and shall include at least—

- (a) a teat complying with the requirements of Clause 6.4.1;
- (b) a shield complying with the requirements of Clause 6.4.2; and
- (c) a ring or handle complying with the requirements of Clause 6.4.3 or Clause 6.4.4 respectively.

## 6.2 Shield dimensions

The shield of a dummy shall—

- (a) be of such size that when the dummy is tested in accordance with Appendix B, the shield shall not pass through the opening in the test template; and
- (b) have a width that is 35 mm or more.

NOTE: The definition of the width of a shield is given in Clause 4.8.

## 6.3 Protruding components

When tested in accordance with Appendix C, the dummy shall comply with the following:

- (a) Either—
  - (i) A ring made of rigid material shall be either hinged or free to swivel, and the ring shall collapse so that it and any other component do not protrude more than 16 mm on the handling side of the shield; or
  - (ii) Any component of rigid material on the handling side of the shield, such as a handle, cover or ring, shall not protrude less than 10 mm or more than 16 mm.
- (b) Any component made of flexible material on the handling side of the shield, such as a handle, cover or ring, shall not protrude less than 10 mm or more than 35 mm.

NOTE: The purpose of this Clause is to minimize the hazard of the dummy being forced into a baby's mouth if the baby, with the dummy in its mouth, falls over onto the dummy.

## 6.4 Individual components

### 6.4.1 Teat

The following provisions apply to the teat of a dummy:

- (a) It shall have an external surface that is smooth.
- (b) It shall not contain—
  - (i) any solid material that is not securely attached to the teat, e.g. a plastics insert; nor
  - (ii) any fluid filling material.

- (c) It shall be constructed so that liquid will not flow into or out of the front portion of the teat.
- (d) It may be constructed so that liquid may flow into or out of the rear portion of the teat, through an opening, provided that the opening either—
  - (i) shall have a cross-sectional area of  $19.6 \text{ mm}^2$  or more and shall permit a suitable cleaning brush to penetrate all inner parts of the teat to enable the teat to be completely cleaned and sterilized; or
  - (ii) shall be so constructed that when the dummy is treated in accordance with the cleaning instructions, as required by Clause 9.2, the dummy including the inside of the teat shall be capable of being cleaned and sterilized.

NOTES:

- 1 Loose solid objects and liquid fillings cannot be contained within parts of a dummy (see Clause 6.4.1(b)), because they present an inhalation hazard to the baby.
- 2 An opening having a cross-sectional area of  $19.6 \text{ mm}^2$  (see Clause 6.4.1(d)(i)) is equivalent to a circular opening having a diameter of 5 mm.

#### 6.4.2 Shield

The following provisions apply to the shield of a dummy:

- (a) It shall be constructed so that the surface intended to contact the baby's lips is smooth.
  - (b) It shall be free from any sharp edges or points that could cause an injury.
  - (c) It shall have at least two ventilation holes positioned symmetrically thereon whereby—
    - (i) the cross-sectional area of each ventilation hole is  $19.6 \text{ mm}^2$  or more;
    - (ii) the periphery of each ventilation hole is 5 mm or more from the periphery of the shield; and
    - (iii) the distance between the geometric centres of the pair of ventilation holes is 15 mm or greater.
- If the shield has two holes that meet the requirements of Clause 6.4.2(c), any additional holes do not have to meet those requirements.
- (d) If made from two or more components that form one or more hollow compartments, or have the components permanently joined to prevent liquid flow into or out of any one of the hollow compartments, each hollow compartment shall not contain—
    - (i) any solid material, e.g. plastics insert, that is not securely attached to any one or more of the components; nor
    - (ii) any liquid filling material.

NOTE: Ventilation holes have been specified in Clause 6.4.2(c) because these would not only provide air passages through which a baby could breathe if the dummy was accidentally 'swallowed', but the ventilation holes would also prevent the risk of the dummy being sucked into the oral pharynx since negative pressure would be generated.

Although the requirement in Clause 6.4.2(c) would be satisfied with only two ventilation holes in the shield, it is recommended that the shield have more than two holes as this would not only provide greater ventilation but would also reduce the risk of all the holes becoming blocked by being overlaid with the inner walls of the baby's mouth.

### 6.4.3 Ring

Where the dummy includes a ring, the following provisions apply to the ring:

- (a) It shall be free from sharp edges or points that could cause an injury.
- (b) It shall be so designed that—
  - (i) it does not extend beyond the boundaries of a projected sphere having a radius of 45 mm and its centre located at the junction of the teat axis and the extension of the inner surface of the shield (see Figure 2);
  - (ii) it will admit a 14 mm diameter rod through its aperture (see Figure 2).
- (c) If made from two or more components that form one or more hollow compartments, or have the components permanently joined to prevent liquid flow into or out of any one of the hollow compartments, each hollow compartment shall not contain—
  - (i) any solid material, e.g. plastics insert, that is not securely attached to any one or more of the components; nor
  - (ii) any liquid filling material.

NOTE: Refer to the protruding components requirements in Clause 6.3.

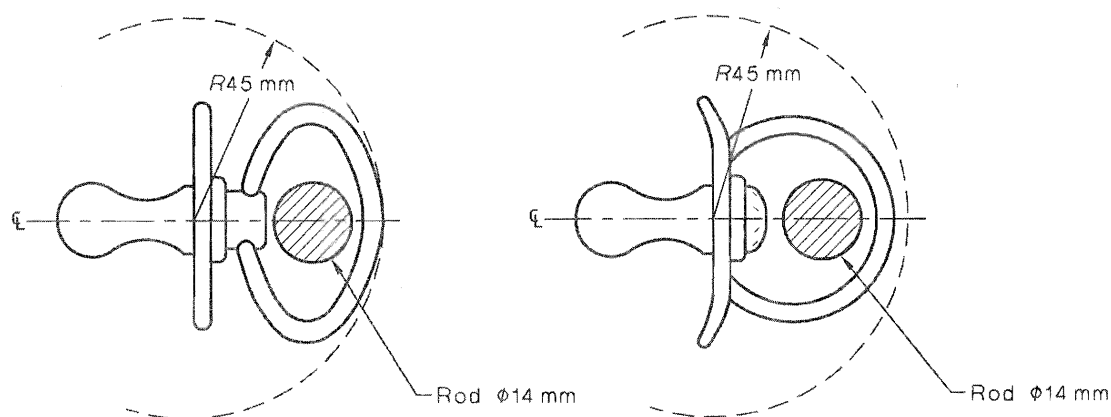


FIGURE 2 DESIGN LIMITATIONS

### 6.4.4 Handle

Where a dummy includes a handle, the following provisions apply to the handle:

- (a) It shall comply with the requirements of Clause 6.4.3(a), b(i) and (c).
- (b) It shall be so designed that it positively assists in the extraction of the dummy from a child's mouth if the dummy was 'swallowed' teat first.
- (c) It shall be so designed that, when it is gripped between two 14 mm diameter rods as shown in Figure 3, the handle and the cross-sectional areas of the rods lie within the boundary of the projected sphere (described in Clause 6.4.3(b)(i)) for all practical positions of the rods relative to the handle.

NOTE: The handle or ring should be able to be securely gripped by the rods, as would be the case if the handle was gripped by a thumb and forefinger. Different length 14 mm diameter rods may be used to facilitate gripping.

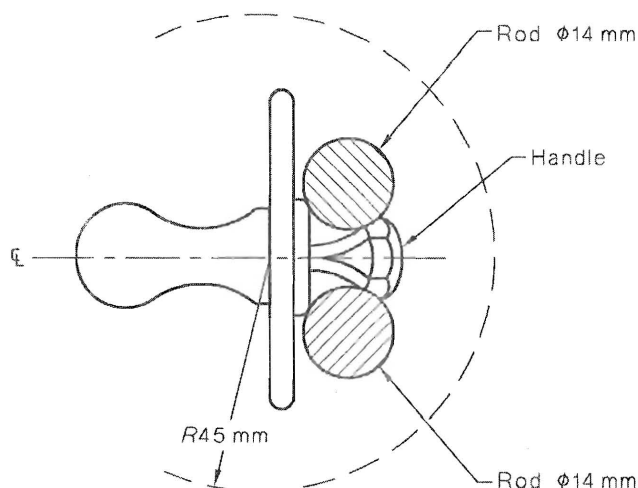


FIGURE 3 HANDLE DESIGN LIMITATIONS

#### 6.4.5 Plug

Where a dummy includes a plug, the following provisions apply to the plug:

- (a) It shall be free from sharp edges or points that would cause an injury.
- (b) It shall be constructed so that it does not damage the teat or shield during or after assembly.
- (c) It may be constructed so that liquid may flow into or out of the plug, through an opening, provided that the opening either:
  - (i) has a cross-sectional area of  $19.6 \text{ mm}^2$  or more and will permit a suitable cleaning brush to penetrate all parts inside the plug and inside the teat, if the liquid is capable of entering the teat, so as to enable the whole dummy including all cavities to be completely cleaned and sterilized; or
  - (ii) is of such construction that, when the dummy is treated in accordance with the instructions specified in Clause 9.2, the dummy including the inside of the plug and the inside of the teat, if the liquid is capable of entering the teat, shall be capable of being completely cleaned and sterilized.

NOTE: See Note 2 to Clause 6.4.1.

## 7 PERFORMANCE TEST REQUIREMENTS

### 7.1 Tensile test

When tested in accordance with Appendix D, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

### 7.2 Compression test

When tested in accordance with Appendix E, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

### 7.3 Bite test

When tested in accordance with Appendix F, no part of a dummy shall become—

- (a) cut through its entire thickness; or
- (b) fractured.

### 7.4 Impact test

When tested in accordance with Appendix G, no part of a dummy shall become—

- (a) detached;
- (b) torn;
- (c) fractured; or
- (d) broken.

### 7.5 Tear test

When tested in accordance with Appendix H, no part of the dummy shall become detached as a result of the slit.

## 8 PACKAGING

The dummy or dummies shall be in a clean condition and the package shall—

- (a) be a sealed pack; and
- (b) not contain any pin, ribbon, string, cord, chain, twine, leather, yarn or any other means of attachment.

NOTE: The purpose of prohibiting the packaging of the attachments with the dummy or dummies is to discourage people from tying or pinning the dummy to the baby. This is because the attachment not only presents a strangulation hazard to the baby, as is indicated by the warning specified in Clause 9.3, but it could also cut off the blood circulation to baby's finger or hand if it becomes wrapped around the finger or wrist.

## 9 LABELLING

### 9.1 General

Each pack containing one or more dummies, shall be legibly labelled with either—

- (a) the name or trademark and address of the manufacturer or distributor, if the dummy or dummies were manufactured in Australia; or
- (b) the name or trademark, and address of the Australian distributor, and the country in which the dummy or dummies were manufactured, if the dummy or dummies were not manufactured in Australia.

### 9.2 Instructions

The pack shall include clearly legible instructions for the use and hygienic care of the dummy.

NOTE: Recommended wording is provided in Appendix I.

Where a dummy is of such a construction that liquid may flow into or out of the teat and/or plug through an appropriate opening or openings in the rear of the dummy, the pack shall also include specific instructions as to how the dummy, including all areas into which liquid may enter, is to be completely cleaned and sterilized.

NOTE: Attention is drawn to the requirements of Clauses 6.4.1(d)(ii) and 6.4.5(c)(ii).

### 9.3 Warning notice

#### 9.3.1 *General*

The pack shall bear a clear and legible warning notice that, except as permitted in Clause 9.3.2, shall state:

**WARNING  
DO NOT TIE DUMMY AROUND BABY'S NECK  
AS IT PRESENTS A STRANGULATION HAZARD**

NOTE: The intention of this Clause is for the warning label to be clearly visible at the point of sale.

#### 9.3.2 *Exception*

Words that have the same meaning may be used in the warning notice of Clause 9.3.1. For example, the word 'PACIFIER' or 'SOOTHER' may be substituted for the word 'DUMMY', and/or the word 'DANGER' may be substituted for the word 'HAZARD'.

#### 9.3.3 *Wording*

The wording on the warning notice shall be—

- (a) clearly legible, in uppercase characters of not less than 2.5 mm in height; and
- (b) such that the word 'WARNING' is in bold typeface and on a separate line from the other words.

APPENDIX A  
CONDITIONING A BABY'S DUMMY  
(Normative)

**A1 SCOPE**

This Appendix sets out the method for conditioning a baby's dummy.

**A2 PRINCIPLE**

The dummy is immersed in boiling water for a specified period and then cooled to room temperature. This is repeated a specified number of times.

**A3 APPARATUS AND REAGENT**

The following apparatus and reagent are required:

- (a) A suitable container.
- (b) A suitable heat source.
- (c) Water.
- (d) A suitable timing device.

**A4 PROCEDURE**

The procedure shall be as follows:

- (a) Boil sufficient water in the container such that, if the dummy were immersed, it would be completely covered by the water.
- (b) Completely immerse the dummy in the boiling water for 5 min.
- (c) Remove the dummy from the boiling water.
- (d) Allow the dummy to cool for 5 min in an ambient temperature within the range of 16°C to 27°C.
- (e) Repeat Steps (a) to (d) a further nine times.



APPENDIX B  
SHIELD TEST  
(Normative)

**B1 SCOPE**

This Appendix sets out the method for testing whether the shield of a baby's dummy is sufficiently rigid and of an allowable size.

NOTE: Clause 6.2(a) specifies the compliance requirements for the test in this Appendix.

**B2 PRINCIPLE**

A dummy is wetted and placed on the test template such that the major axis of the shield aligns with the major axis of the template and the minor axis of the shield aligns with the minor axis of the template. A specified force is applied in an attempt to force the dummy through the template. The dummy is then inverted and the previous procedure repeated.

**B3 APPARATUS AND REAGENT**

The following apparatus and reagent are required:

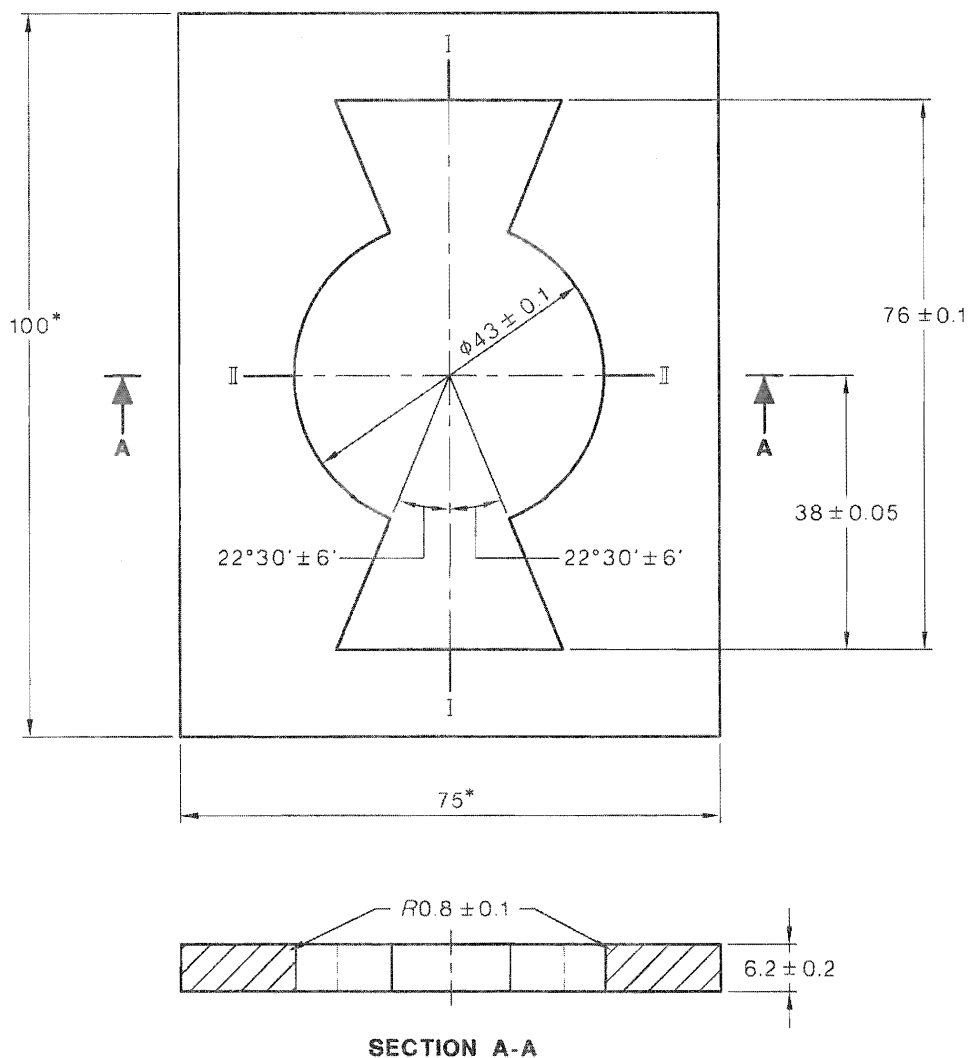
- (a) A suitable device capable of applying a force of 9 N to an accuracy of  $\pm 0.5$  N.  
A test template as shown in Figure B1 made from  $6.2 \pm 0.2$  mm thick polytetrafluoroethylene (PTFE). The radius of all edges along the plane of the opening shall be  $0.8 \pm 0.1$  mm.  
The test template shall have scribed on its major axis (I-I) and minor axis (II-II).
- (b) A suitable timing device.
- (c) An aqueous wetting solution comprising of 2% (V/V) of 'Polysorbate 80' wetting agent.

**B4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**B5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of 16°C to 27°C.



DIMENSIONS IN MILLIMETRES

\* Dimensions are recommended only.

FIGURE B1 TEST TEMPLATE

**B6 PROCEDURE**

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Lightly scribe on each side of the shield a set of perpendicular axes that intersect at the centre of the opening through which the teat protrudes.

Where the shield is non-circular, the set of axes shall be the major and minor axes.

- (c) Completely immerse the dummy for at least 10 s in the wetting solution.

- (d) While the dummy is wet, place the dummy teat down in the opening in the horizontally mounted template as shown in Figure B2 so that the major axis of the shield is aligned with the major axis I-I of the template, and the minor axis of the shield is aligned with the minor axis II-II of the template.

NOTE: Figures B4(a), B4(c), B4(e) and B4(g) illustrate examples of the correct orientation of the axes of the shield to the axes of the test template; and Figures B4(b), B4(d), B4(f) and B4(h) illustrate examples of the incorrect orientation of the axes of the shield to the axes of the test template.

- (e) Attach the force device to the teat of the dummy and gradually apply a force of  $9 \pm 0.5$  N, ensuring that the force is acting along the axis of the teat (see Figure B2). Maintain full force in a direction perpendicular to the template for  $10 +1, -0$  s.
- (f) Observe whether the shield is forced through the opening in the template.
- (g) Cut off the teat completely, ensuring no residue is left on the dummy that could influence the free movement of the dummy on the test device.
- (h) Completely immerse the dummy for at least 10 s in the wetting solution.
- (i) While the dummy is wet, place the dummy teat side up in the opening in the horizontally mounted template as shown in Figure B3, so that the major axis of the shield is aligned with the major axis I-I of the template, and the minor axis of the shield is aligned with the minor axis II-II of the template.
- (j) Gradually apply a force of  $9 \pm 0.5$  N from above the dummy through a rod of slightly larger diameter than the base of the teat, centred on the base of the teat. Ensure that the force is acting only along the axis of the teat (see Figure B3). Maintain full force in a direction perpendicular to the template for  $10 +1, -0$  s.
- (k) Observe whether the shield is forced through the opening in the template.

## **B7 REPORT**

Report the following:

- (a) Whether the shield passed through the opening in the test template during testing, as described in Paragraph B6.
- (b) Reference to this test method (i.e. AS 2432, Appendix B).

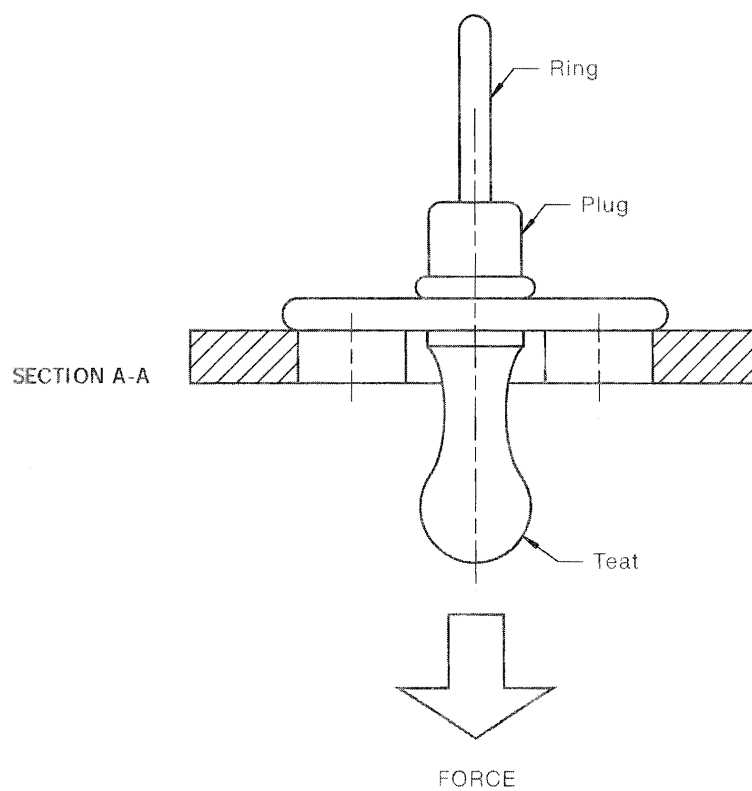


FIGURE B2 TEAT DOWN TEST ARRANGEMENT

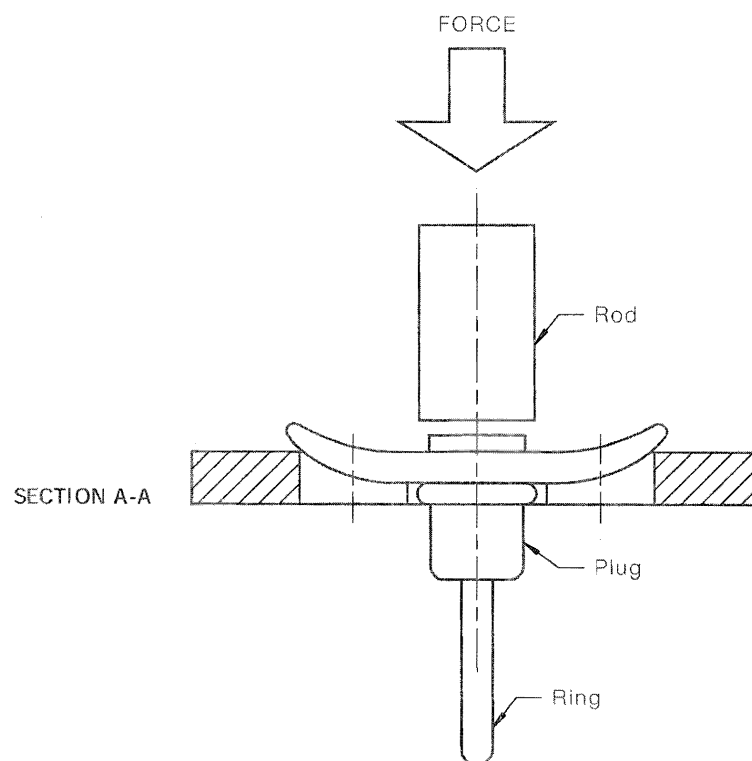


FIGURE B3 TEAT UP TEST ARRANGEMENT

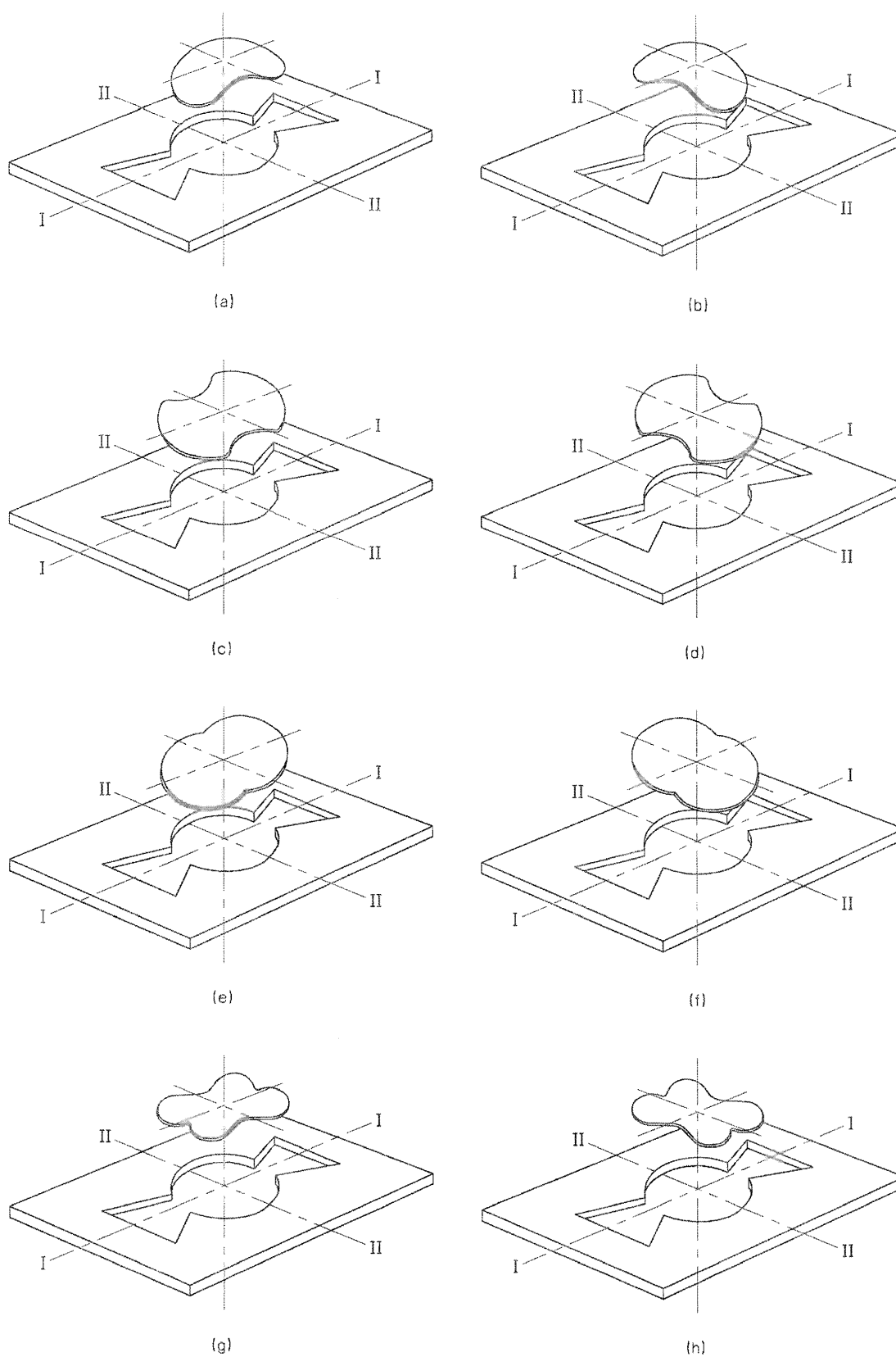


FIGURE B4 ILLUSTRATED EXAMPLES OF THE CORRECT AND INCORRECT ORIENTATION OF DUMMY SHIELD  
(See Paragraph B6, Note to Item (d))

APPENDIX C  
PROTRUSION TEST  
(Normative)

**C1 SCOPE**

This Appendix sets out the method for determining the distance that a part of a baby's dummy protrudes past the front end of the shield.

NOTE: Clause 6.3 specifies the compliance requirements for the test in this Appendix.

**C2 PRINCIPLE**

The dummy is suitably clamped and a flat surface is applied with a specified force to any part of the dummy that protrudes past the front end of the shield. The distance between the flat surface and specified point on the shield is then measured.

**C3 APPARATUS**

The following apparatus is required:

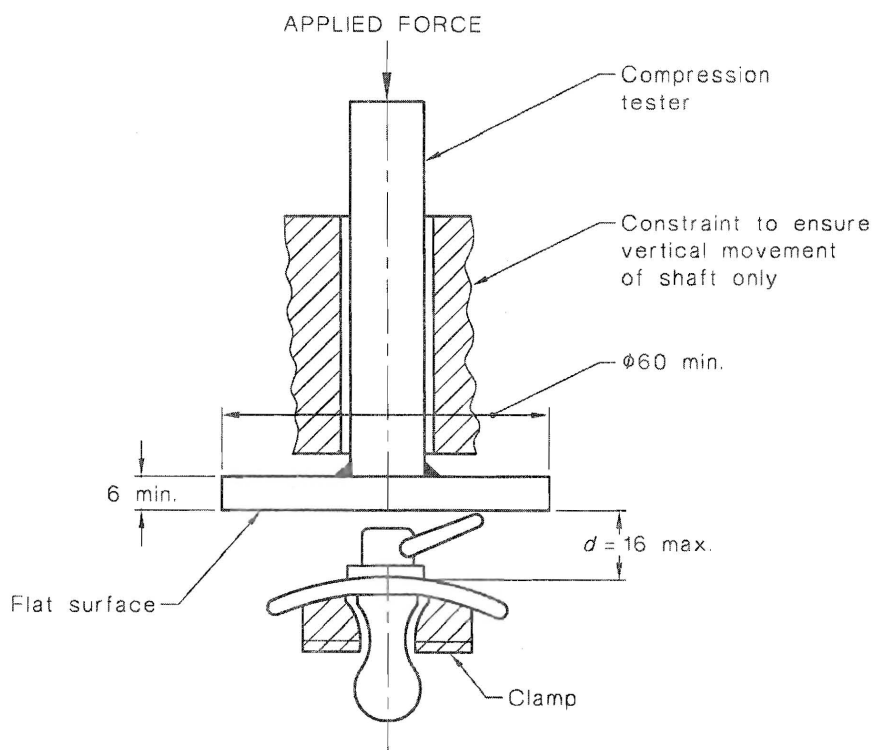
- (a) A compression tester as shown and specified in Figure C1. The compression tester shall be capable of applying a compressive force of 9 N to an accuracy of  $\pm 0.5$  N.
- (b) A clamp having a suitable configuration at one end that is capable of contacting the shield surface at—
  - (i) the junction of the shield and the teat; and
  - (ii) the junction of the shield and the immediate point of origin of the protruding component on the handling side of the shield.
- (c) A suitable means of measuring length in millimetres.
- (d) A suitable timing device.

**C4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**C5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of 16°C to 27°C.



DIMENSIONS IN MILLIMETRES

FIGURE C1 PROTRUSION TEST ARRANGEMENT

## C6 PROCEDURE

The procedure shall be as follows:

- (a) Condition of the dummy in accordance with Appendix A.
- (b) Fasten the dummy in the clamp with its teat down.
- (c) Position the flat surface of the tester so that it is perpendicular to the axis of the teat.

Where the teat is not of a symmetrical shape, the flat surface of the tester shall be positioned so that it is perpendicular to an axis that would be most representative of the dummy as a whole.

- (d) If the dummy has a ring made of rigid material that is either hinged or free to swivel, gradually apply the flat surface of the tester to the ring with a force attaining  $9 \pm 0.5$  N over a period of  $5 +1, -0$  s. If necessary, swivel the ring slightly before applying the force. Allow the ring to swivel when the flat surface of the tester is applied.

NOTE: In some cases, the ring is able to collapse further than any other component on the handling side of the shield, such as a handle or cover. In such cases, the flat surface of the tester is to be applied to the component that protrudes the most.

- (e) While maintaining full force, determine the distance  $d$  (see Figure C1) between the flat surface contacting the ring and the point at the junction of the shield and the immediate point of origin of the protruding component on the handling side of the shield. The distance shall be measured perpendicular to the flat surface.
- (f) Remove the force.

- (g) If the dummy does not have a ring made of rigid material that is either hinged or free to swivel, gradually apply the flat surface of the tester to the component, such as a handle, cover or ring, that protrudes the most until the flat surface is just in contact with the component without applying any force to it.
- (h) Determine the distance between the flat surface contacting the component and the point at the junction of the shield and the immediate point of origin of the protruding component on the handling side of the shield. The distance shall be measured perpendicular to the flat surface.

#### **C7 REPORT**

Report the following:

- (a) The description of the component, whether the material is rigid or flexible, and the distance measured according to Paragraph C6 (e) or C6 (h), whichever is applicable.
- (b) Reference to this test method, i.e. AS 2432, Appendix C.



APPENDIX D  
TENSILE TEST  
(Normative)

**D1 SCOPE**

This Appendix sets out the method for testing a baby's dummy under a tensile force.

NOTE: Clause 7.1 specifies the compliance requirements for the test in this Appendix.

**D2 PRINCIPLE**

A dummy is suitably fastened in a fixture. A specified tensile force is then applied to a specified part of the dummy in an attempt to pull it away from the rest of the dummy.

**D3 APPARATUS**

The following apparatus is required:

- (a) A suitable clamp.
- (b) A suitable device capable of applying a tensile force of 90 N to an accuracy of  $\pm 5$  N.
- (c) A suitable timing device.

**D4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**D5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of 16°C to 27°C.

**D6 PROCEDURE**

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Clamp the shield and gradually over a period of 5 s to 10 s apply a tensile force of  $90 \pm 5$  N in the direction specified below. Maintain for 10 +1, -0 s.
  - (i) Apply the tensile force to the teat in a direction along the axis of the teat.
  - (ii) Apply the tensile force to the teat in a direction that is perpendicular to the axis of the teat.
  - (iii) Apply the tensile force to the ring or handle in a direction along the axis of the teat.
  - (iv) Apply the tensile force to the ring or handle in a direction that is perpendicular to the axis of the teat.
  - (v) If the dummy has a plug, apply the tensile force to the plug in a direction along the axis of the teat.
  - (vi) If the dummy has a plug, apply the tensile force to the plug in a direction that is perpendicular to the axis of the teat.
- (c) Observe whether any part of the dummy becomes detached, torn, fractured, or broken as a result of applying the relevant tensile forces.

**D7 REPORT**

Report the following:

- (a) Whether any part of the dummy became detached, torn, fractured or broken as observed in Paragraph D6(c).
- (b) Reference to this test method, i.e. AS 2432, Appendix D.

APPENDIX E  
COMPRESSION TEST  
(Normative)

**E1 SCOPE**

This Appendix sets out the method for testing a baby's dummy under compressive force.

NOTE: Clause 7.2 specifies the compliance requirements for the test in this Appendix.

**E2 PRINCIPLE**

A specified compressive force is applied to the dummy, the ring or handle and, if applicable, the plug. The dummy is then visually examined for breaks, fractures or other damage.

**E3 APPARATUS**

The following apparatus is required:

- (a) A compression tester as shown in Figure E1. The compression tester shall be capable of applying a compressive force of 45 N and 130 N to an accuracy of  $\pm 5$  N.
- (b) A hard, level surface.
- (c) A suitable fixture that is capable of contacting the inner shield surface at the junction of the shield and the teat when a dummy is fastened therein and is capable of fastening the shield in such a manner that the compression tester can be applied, to—
  - (i) the ring or handle, whichever is appropriate; and
  - (ii) the plug, if the dummy includes a plug.
- (d) A suitable timing device.

**E4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**E5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of 16°C to 27°C.

**E6 PROCEDURE**

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Position the dummy on the hard, level surface, centrally under the compression tester, so that the teat is in a downward attitude and in contact with the surface, as shown in Figure E1.
- (c) Gradually over a period of 5 s to 10 s apply a force of  $130 \pm 5$  N to the compression tester and maintain for  $10 \pm 1$ ,  $-0$  s.
- (d) Remove the force after the specified period.
- (e) Again position the dummy on the hard, level surface, centrally under the compression tester, so that the teat is now in an upward attitude and does not contact the surface.

- (f) Repeat Steps (c) and (d).
- (g) Clamp the dummy firmly in the fixture such that the dummy and compression tester are aligned axially (see Figure E1).
- (h) Restrain the ring or handle such that—
  - (i) it is aligned axially with the dummy and compression tester; and
  - (ii) it will not pivot or hinge.
- (i) Position the plate of the compression tester so that it contacts the ring or handle.
- (j) Gradually over a period of 5 s to 10 s apply a force of  $45 \pm 5$  N to the compression tester and maintain for  $10 +1, -0$  s.
- (k) Remove the force after the specified period.
- (l) If the dummy has a plug, clamp the dummy firmly in the fixture as previously described, and position the plate of the compression tester so that it contacts the plug.  
NOTE: It may be necessary to remove part of the dummy to achieve contact of the plate with the plug.
- (m) Repeat Steps (j) and (k).
- (n) Remove the dummy from the fixture and visually examine it to observe whether any part of the dummy became detached, torn, fractured or broken.

## E7 REPORT

Report the following:

- (a) Whether any part of the dummy became detached, torn, fractured or broken, as observed in Paragraph E6(n).
- (b) Reference to this test method, i.e. AS 2432, Appendix E.

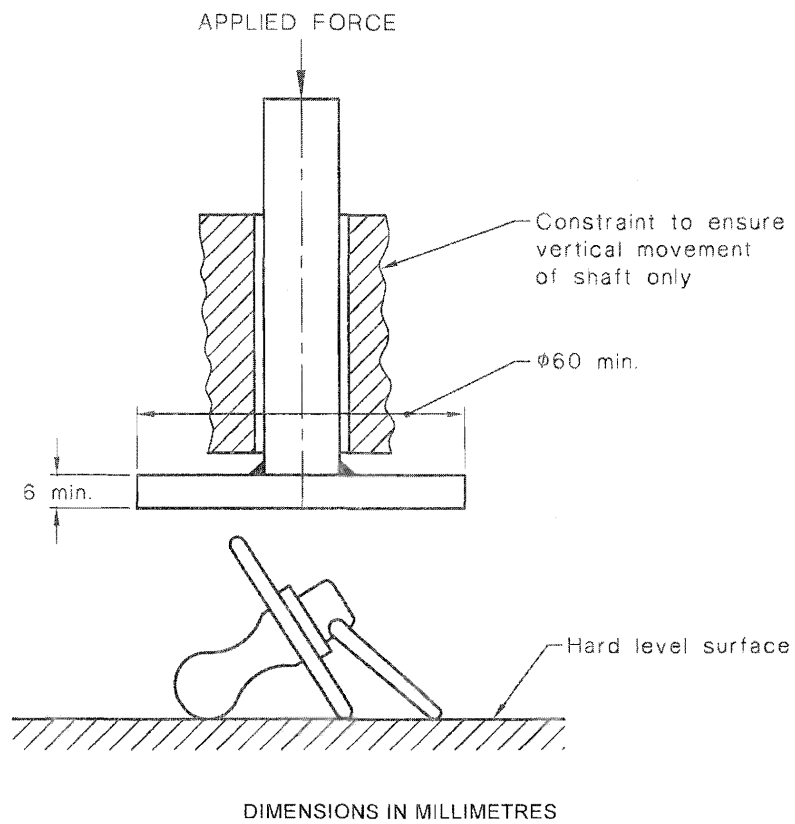


FIGURE E1 COMPRESSION TEST ARRANGEMENT

APPENDIX F  
BITE TEST  
(Normative)

**F1 SCOPE**

This Appendix sets out the method for testing a baby's dummy for resistance to biting.

NOTE: Clause 7.3 specifies the compliance requirements for the test in this Appendix.

**F2 PRINCIPLE**

Specified parts of a dummy are placed in a jaw clamp and a force is applied to the clamp. The dummy is then visually examined for breaks or fractures or other damage.

**F3 APPARATUS**

The following apparatus is required:

- (a) A bite clamp made from hardened steel as shown in Figure F1, or equivalent apparatus.
- (b) A suitable device capable of applying a force of  $45 \pm 5$  N.
- (c) A suitable timing device.

**F4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**F5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of 16°C to 27°C.

**F6 PROCEDURE**

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Position, in turn, the following specified part of the dummy at the specified distance, relative to the centre-line of the teeth of the bite clamp, line A-A in Figure F1, between the upper and lower plates:
  - (i) Teat, approximately 3 mm from front end of the teat.
  - (ii) Teat, approximately 3 mm from junction of teat and shield location or as close as practicable.
  - (iii) Shield, approximately 5 mm from outer periphery of the shield.
  - (iv) Shield, approximately 10 mm from outer periphery of the shield.
  - (v) Ring or handle, approximately 10 mm from and on both sides of the mid-point of the ring or handle.
  - (vi) Plug, if the dummy has a plug, at any convenient location, not being less than 3 mm from the outer periphery of the plug.

- (c) To each of the above specified parts, when positioned at the specified distance, gradually over a period of 5 s to 10 s apply a force of  $45 \pm 5$  N to the loading point.
- (d) Maintain for  $10 +1, -0$  s.
- (e) After subjecting all the parts specified in Step (b) to the force, visually examine the dummy to observe whether any part of the dummy was cut through its entire thickness or had fractured.

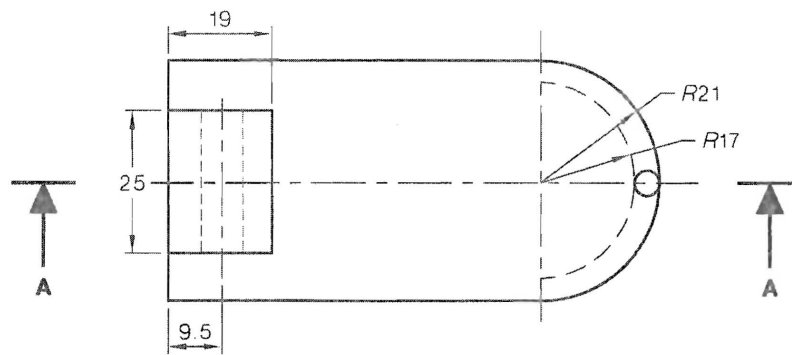
NOTE: The cut need not completely sever a portion of the dummy; all that is required is that the cut clearly extends through the entire thickness of that particular portion.

Any permanent indentation on a part of the dummy due to the test procedure is not to be considered as a fracture unless the indentation has a crack through the entire thickness of that part.

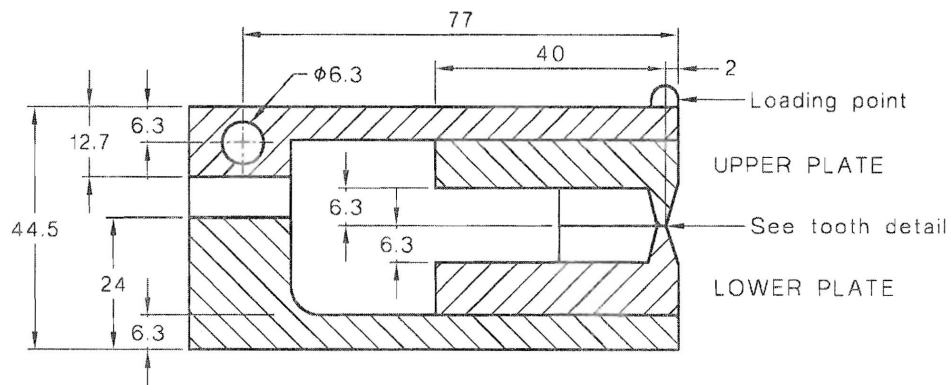
## **F7 REPORT**

Report the following:

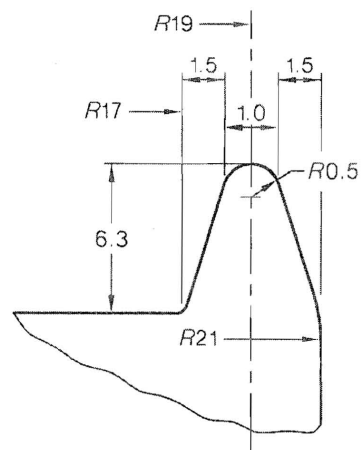
- (a) Whether any part of the dummy had a cut through the entire thickness or became fractured, as observed in Paragraph F6(e).
- (b) Reference to this test method, i.e. AS 2432, Appendix F.



TOP VIEW OF UPPER PLATE AND HINGE



SECTION A-A



TOOTH DETAIL

## TOLERANCES:

On tooth =  $\pm 0.2$  mmOn remainder of clamp =  $\pm 0.4$  mm.

DIMENSIONS IN MILLIMETRES

FIGURE F1 BITE TEST CLAMP



APPENDIX G  
IMPACT TEST  
(Normative)

**G1 SCOPE**

This Appendix sets out the method for testing a baby's dummy for resistance to impact.

NOTE: Clause 7.4 specifies the compliance requirements for the test in this Appendix.

**G2 PRINCIPLE**

A dummy is positioned on a hard, level surface and a metal striker is dropped on to it from a specified height. The dummy is then visually examined for damage.

**G3 APPARATUS**

The following apparatus is required:

- (a) A solid metal striker in the form of a cylinder having a flat face of  $80 \pm 2$  mm diameter and a mass of  $1 \pm 0.02$  kg.
- (b) A hard, level surface.
- (c) A suitable means of establishing a vertical distance of  $100 \pm 2$  mm.

**G4 TEST SPECIMEN**

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

**G5 TEST CONDITIONS**

The test procedure shall be performed at a temperature range of  $16^{\circ}\text{C}$  to  $27^{\circ}\text{C}$ .

**G6 PROCEDURE**

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Position the dummy on the hard, level surface so that the teat is in a downward attitude and in contact with the hard surface.
- (c) Position the striker so that the vertical distance between the uppermost part of the dummy and the lower surface of the striker is 100 mm and the centre of the striker is the first point to contact the dummy.
- (d) Release the striker.
- (e) Perform Steps (c) and (d) a total of 5 times on the same sample with as far as practical, each impact carried out with the dummy in a different stable orientation.
- (f) Visually examine the dummy to observe whether or not any part of the dummy became detached, torn, fractured or broken.

**G7 REPORT**

Report the following:

- (a) For each of the dummy attitudes, state whether or not any part of the dummy became detached, torn, fractured or broken as a result of the impact test.
- (b) Reference to this test method, i.e. AS 2432, Appendix G.

## APPENDIX H

### TEAR TEST

(Normative)

#### H1 SCOPE

This Appendix sets out a method for testing the teat of a baby's dummy for its resistance to tearing.

NOTE: Clause 7.5 specifies the compliance requirements for the test in this Appendix.

#### H2 PRINCIPLE

A small cut is made through the neck of the teat of a dummy. (The cut is located centrally and at right angles to the major axis of the teat.) A specified tensile force is then applied to the teat to test its resistance to tearing.

#### H3 APPARATUS

The following apparatus is required:

- (a) A suitable cutting device capable of cutting a  $3 \pm 0.5$  mm long slit.
- (b) A clamp having jaws with attached discs of 19 mm diameter for clamping the teat of the dummy.
- (c) A tensile device capable of applying a tensile force of 90 N to an accuracy of  $\pm 5$  N.
- (d) A suitable means of measuring length in millimetres.
- (e) A suitable timing device.

#### H4 TEST SPECIMEN

The test dummy shall be representative of the batch and shall not have undergone any other test specified in this Standard.

#### H5 TEST CONDITIONS

The test procedure shall be performed at a temperature range of 16°C to 27°C.

#### H6 PROCEDURE

The procedure shall be as follows:

- (a) Condition the dummy in accordance with Appendix A.
- (b) Centre the cutting means over the major axis of the teat such that it is  $7.5 \pm 2.5$  mm from either—
  - (i) the front face of the flange, if a plug does not protrude past the front face; or
  - (ii) the end of the plug, if a plug does protrude past the front face of the flange.

NOTE: In the case of teats not having a circular cross-section, for example an orthodontic teat, the cutting device should be over the flattened surfaces of the neck of the teat.

- (c) Compress the neck of the teat and cut a slit using the cutting device (Item H3(a)) (transverse to the major axis of the dummy) through both thicknesses of the teat material, if the teat is not solid, or through the entire thickness of the teat material, if the teat is solid.

- (d) Firmly clamp  $10 \pm 2$  mm of the bulb of the teat so that the cuts are superimposed.
- (e) Gradually for a period of 5 s to 10 s apply a tensile force of  $90 \pm 5$  N to the ring, or handle in a direction that is along the axis of the teat. Maintain for a period of  $10 + 1, -0$  s.
- (f) Observe whether any part of the dummy became detached as a result of the slit.

## H7 REPORT

Report the following:

- (a) Whether any part of the dummy became detached as a result of the slit as observed in Paragraph H6(f).
- (b) Reference to this test method, i.e. AS 2432, Appendix H.

## APPENDIX I

## RECOMMENDATIONS FOR INSTRUCTIONS FOR THE USE AND HYGIENIC CARE OF BABIES' DUMMIES

(Informative)

NOTE: Clause 9.2 specifies the compliance requirements relating to this Appendix.

Each pack containing one or more dummies should include the following recommended instructions and hygienic care information:

- (a) Before each use, thoroughly clean then sterilize the dummy by either—
    - (i) immersing the dummy in a baby-bottle sterilizing solution in accordance with the instructions for use of the sterilizing solution; or
    - (ii) boiling the dummy in water for 5 min.
- NOTE: Where the dummy is constructed so that liquid may enter into the teat or plug or both, the instructions should also state how the dummy including all the areas into which matter may have entered can be completely cleaned and sterilized (see Clauses 6.4.1(d)(ii) and 6.4.5(c)(ii)).
- (b) Dummies have a limited life. Inspect carefully before each use, especially when the child has teeth. Pull the teat part in all directions. Throw away at the first signs of damage or weakness.
  - (c) Do not dip teat in sweet substances (e.g. syrups, honey, jam) as this can lead to tooth decay.
  - (d) Do not attach to any part of the dummy (i.e. around the ring, plug or through the ventilation holes) pins, ribbons or string as these can be strangulation hazards. Strangulation hazards include the cutting off of blood supply to fingers and limbs.
  - (e) In the event that the dummy becomes lodged in the mouth be aware it cannot be swallowed and is designed to cope with such an event. Remove from the mouth with care as gently as possible.
  - (f) Do not leave dummy in direct sunlight when not in use or near a source of heat, or leave in a sterilizing solution for longer than recommended, as this may weaken the teat.
  - (g) When dummy is not intended to be used immediately after sterilization, store in a dry, covered container.

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